

Table of flood stages in February 1933—Continued

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Ohio Basin—Continued					
Green:	<i>Feet</i>			<i>Feet</i>	
Munfordville, Ky.....	28	21	23	29.4	22.
Lock No. 6, Brownsville, Ky.....	28	22	23	28.1	22, 23.
Lock No. 4, Woodbury, Ky.....	33	17	26	39.4	23.
Lock No. 2, Rumsey, Ky.....	34	23	(1)	36.7	27.
West Fork of White: Edwardsport, Ind.	12	27	28	13.6	28.
White: Decker, Ind.....	18	Jan. 24	4	21.8	Jan. 28, 29.
Wabash: Mt. Carmel, Ill.....	16	Jan. 23	2	20.9	Jan. 28, 29.
Cumberland:					
Carthage, Tenn.....	40	22	22	40.8	22.
Nashville, Tenn.....	40	20	26	45.0	21.
Clarksville, Tenn.....	46	21	27	50.6	22.
Lock F, Eddyville, Ky.....	50	21	Mar. 3	58.0	27.
North Fork of Holston: Mendota, Va.	8	15	15	8.0	15.
Pigeon: Newport, Tenn.....	6	{ 8	9	7.1	8.
		{ 15	16	10.3	15.
French Broad: Dandridge, Tenn.....	12	{ 15	16	13.9	15.
		{ 14	18	23.5	14.
Elk: Fayetteville, Tenn.....	14	{ 20	21	17.6	20.
Tennessee:					
Rockwood, Tenn.....	20	16	17	21.6	16.
Chattanooga, Tenn.....	30	17	18	32.6	17.
Bridgeport, Ala.....	18	16	23	23.0	18.
Guntersville, Ala.....	25	17	25	31.1	20.
Florence, Ala.....	18	18	24	21.1	21.
Riverton, Ala.....	33	15	27	41.9	22.
Savannah, Tenn.....	32	16	27	41.7	23.
Johnsonville, Tenn.....	31	20	28	34.3	24.

1 Continued into March.

Table of flood stages in February 1933—Continued

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Ohio Basin—Continued					
Ohio:	<i>Feet</i>			<i>Feet</i>	
Dam No. 50, Fords Ferry, Ky.....	32	25	Mar. 2	33.6	27.
Dam No. 52, Brookport, Ill.....	35	22	Mar. 4	39.2	28.
Dam No. 53, Grand Chain, Ill.....	38	23	Mar. 4	42.0	Mar. 1.
White Basin					
White: Georgetown, Ark.....	21	Jan. 25	4	22.1	Jan. 30.
Arkansas Basin					
Arkansas: Yancopin, Ark.....	29	5	13	29.7	10-11.
Red Basin					
Sulphur: Ringo Crossing, Tex.....	20	28	(1)	23.8	28.
Lower Mississippi Basin					
St. Francis: St. Francis, Ark.....	18	Jan. 23	3	22.3	Jan. 28.
Tallahatchie: Swan Lake, Miss.....	24	Dec. 16	(1)	33.0	26.
Yazoo: Yazoo City, Miss.....	25	8	(1)	25.8	28.
Atchafalaya Basin					
Atchafalaya: Atchafalaya, La.....	22	Jan. 10	(1)	22.9	11-19.
PACIFIC SLOPE DRAINAGE					
Columbia Basin					
Long Tom: Monroe, Oreg.....	10	Jan. 26	2	13.6	Jan. 28.
Snake: Weiser, Idaho.....	14	16	18	15.0	17.

WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

[The Marine Division, W. F. McDonald in charge]

NORTH ATLANTIC OCEAN

By W. F. McDONALD

Atmospheric pressure.—There was a decided change in the average pressure situation over the North Atlantic in February 1933, as compared with the preceding month. Instead of a deeply depressed barometer over Iceland the average pressure at Reykjavik was almost half an inch above the February normal. At the same time the pressure over middle latitudes decreased, and the barometer at Horta averaged two tenths of an inch below normal. Pressures along the American coast were normal to a tenth of an inch below. (See table 1.)

Lowest pressures reported from ships at sea were, 28.59 inches, from the French S.S. *Paris*, near latitude 44° N., longitude 54° W., on the evening of February 5; and 28.56 inches (the lowest reported from any part of the Atlantic or adjacent land areas during the month) from the British S.S. *Majestic*, near latitude 42° N., longitude 57° W., on the morning of the 27th.

The highest readings reported from ships on the North Atlantic were 30.68 inches, from the American ships *Wytheville* and *Leviathan*, between 40° and 45° N., and 45° and 65° W., on the evening of the 10th and morning of the 11th.

Cyclones and gales.—Storminess diminished greatly in intensity over the North Atlantic in February. The alteration in average pressures, outlined above, reflects the lessening of the barometric gradient between the normal Atlantic HIGH, and the Icelandic Low, that accompanied this reduction in gale intensities over the main trans-Atlantic routes. While winds of gale force occurred in some part of the ocean on nearly every day in the month, the force seldom exceeded Beaufort 9, and on only a few days were gales reported over wide areas.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, February 1933

Station	Average pressure	Departure	High-est	Date	Lowest	Date
	<i>Inches</i>	<i>Inch</i>	<i>Inches</i>		<i>Inches</i>	
Julianehaab, Greenland.....	30.03		30.79	27	29.14	13
Reykjavik, Iceland.....	29.98	+0.44	30.58	18	28.74	1
Lerwick, Shetland Islands.....	29.79	+0.07	30.46	11	28.55	2
Valencia, Ireland.....	29.96	+0.06	30.69	12	29.06	25
Lisbon, Portugal.....	30.10	.00	30.44	7	29.52	26
Madeira.....	30.02	-.05	30.37	7	29.62	24
Horta, Azores.....	29.95	-.20	30.48	10	29.52	25
Belle Isle, Newfoundland.....	29.77	+0.02	30.58	11	28.82	16
Halifax, Nova Scotia.....	29.81	-.10	30.52	11	28.80	28
Nantucket.....	29.93	-.11	30.67	10	29.18	26
Hatteras.....	30.10	-.01	30.70	10	29.51	4
Bermuda.....	30.07	-.05	30.48	14	29.46	27
Turks Island.....	30.10	+0.02	30.20	14	29.90	27
Key West.....	30.10	+0.03	30.30	9	29.77	28
New Orleans.....	30.13	+0.04	30.66	9	29.70	7
Cape Gracias, Nicaragua.....	29.95	-.04	30.04	15	29.84	27

NOTE.—All data based on a.m. observations only with departures compiled from best available normals related to time of observation, except Hatteras, Key West, Nantucket, and New Orleans, which are 24-hour corrected means.

Three ships experienced winds of force 12, as follows: the American S.S. *Montoso*, southwest of Bermuda, on the 4th; the Norwegian S.S. *Taurus*, about 600 miles south of Sable Island, on the 6th, and the American S.S. *West Quechee*, in a similar location, on the 27th. Whole gale to storm winds were encountered by a number of other vessels (as shown by the accompanying table) mostly between the 4th and 7th, the 16th to 18th, and on the 27th, which were the stormiest periods of the month on the main sailing routes.

Cyclonic storms of considerable intensity dominated the middle and northern areas of the North Atlantic during the first week, but the Atlantic HIGH was fully established by the 8th, and continued dominant until the middle of the month. The culmination of the cyclonic

movements and beginning of reestablishment of the high pressure belt are shown on chart VIII, for February 7.

On the 14th (see ch. IX), the usual Icelandic Low was entirely displaced by a belt of high pressure that extended from the Pacific across North America and thence north-eastward to the British Isles and Iceland. This was the maximum development of high pressure over the Atlantic. Shortly thereafter, this condition was broken up by the development of a succession of disturbances originating south of the Azores, that by joining with similar developments moving into the Atlantic over the Grand Banks, repeatedly disrupted the Atlantic HIGH during the latter half of the month. The gradual increase in extent and depth of these pulsations of low pressure resulted finally in domination of the North Atlantic by a belt of low pressure that at the close of the month, extended entirely across the ocean between the thirtieth and fifty-fifth parallels of latitude. At the same time, the normal Low of higher latitudes was replaced by a HIGH that covered the whole polar region and extended down over Greenland and Iceland.

Mexican Gulf "northerners" and the Caribbean trade winds.—On February 8, an intense HIGH moved down over the Gulf of Mexico, preceded by a sharp depression. Southerly winds of force 7 attending the cyclonic trough were quickly over-mastered by the following northerly gale, and northerly winds of force 7 to 8 prevailed on the 8th and morning of the 9th, as far southward as the Florida Straits and Yucatan Channel.

The northeast trade in the Caribbean region was intensified to moderate gale force at times over the western part of that sea, especially between Aruba and Panama. The trades diminished considerably in intensity after the 20th.

Fog.—Fog increased slightly in the region between New York and the Grand Banks, where this condition was reported on 4 to 7 days, but no fog was reported from midocean, and in only a few scattered cases over the area between the Azores and the European coast. The northern Gulf of Mexico again experienced an unusual number of fogs, 11 days with fog being reported off Galveston and along the Louisiana coast.

OCEAN GALES AND STORMS, FEBRUARY 1933

Vessel	Voyage		Position at time of lowest barometer		Gale began	Time of lowest barometer	Gale ended	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN													
Atlantian, Br.S.S.	Liverpool	Boston	50 18 N	36 13 W	Feb. 2	8 p., Feb 2	Feb. 2	Inches 29.08	NE	NNE, 8	NNE	NNE, 8	Steady.
Ampelco, Belg.S.S.	Rouen	Baytown	30 00 N	45 50 W	Jan. 30	4 a., 2	do	29.54	SW	NW, 8	NW	NW, 8	do
Montoso, Am.S.S.	Puerto Rico	New York	30 35 N	72 00 W	Feb. 4	8 p., 4	Feb. 6	29.69	WSW	WSW, 7	N	NW, 12	
San Tirso, Br.S.S.	Liverpool	Mexico	42 50 N	28 20 W	Jan. 31	2 a., 4	Feb. 9	29.31	SW	SW, 6	NNW	—, 11	SSW-SW.
Topa Topa, Am.S.S.	Tampa	Havre	39 00 N	35 49 W	Feb. 3	5 a., 5	Feb. 8	28.91	NW	S, 10	N	S, 10	NW-S.
Independence Hall Am. S.S.	Bordeaux	New York	43 23 N	55 08 W	Feb. 5	4 p., 5	Feb. 10	28.51	W	SW, 9	WNW	W, 11	E-S-W.
Tachira, Am.S.S.	New York	La Guayra	28 02 N	69 18 W	do	10 p., 5	Feb. 6	29.95	NW	—, 8	N	NW, 8	NW-N.
Ajoundria, Am.S.S.	Glasgow	Pensacola	48 22 N	16 47 W	Feb. 6	Noon, 6	Feb. 8	29.48	WSW	SW, 7	SSW	SW, 10	
Taurus, Nor.S.S.	Savannah	London	37 56 N	58 10 W	Feb. 4	do	do		S	NW, 11	WNW	WNW, 12	S-W-WNW.
Georgia, Dan.S.S.	Antwerp	Norfolk	41 38 N	38 35 W	Feb. 5	1 p., 7	do	29.17	SW	SW, 10	N	SW, 10	SW-NW-N.
Otho, Am.S.S.	New York	Nigeria	5 43 N	0 38 E	Feb. 7	1 a., 7	Feb. 7	29.84	SW	—, 7	NW	N, 8	
Fred W. Weller, Am.S.S.	C o r p u s Christi	Boston	26 20 N	90 55 W	Feb. 8	7 a., 8	Feb. 9	30.03	N	N, 7	NE	NNW, 8	
Steel Trader, Am.S.S.	Swansea	St. John, N.B.	52 02 N	17 18 W	do	3 a., 9	Feb. 10	29.61	SW	SW, 8	WNW	SSW, 9	SSW-WSW.
West Imboden, Am.S.S.	Jacksonville	Maceio	22 21 N	66 03 W	Feb. 10	Noon, 10	Feb. 15	30.14	NE	NE, 7	NE	—, 8	Steady.
Samaria, Br.S.S.	Halifax	Plymouth	46 20 N	42 55 W	Feb. 11	10 p., 11	Feb. 13	29.25	SSE	SW, 7	WNW	ESE, 9	ESE-WSW.
Daytonian, Br.S.S.	New York	Liverpool	59 22 N	1 50 W	Feb. 12	Mdt., 12	do	29.57	SSE	—	NW	—, 9	SSE-S-W.
United States, Dan.S.S.	Oslo	New York	59 22 N	1 50 W	do	11 p., 12	Feb. 14	30.08	W	W, 7	NW	W, 9	W-NW.
Gonsenheim, Ger.S.S.	Galveston	Bremen	40 19 N	58 47 W	Feb. 11	4 a., 12	Feb. 12	29.73	SE	SSW, 7	NW	S, 11	SW-WNW.
City of Dahart, Am.M.S.	Port Said	New York	35 50 N	42 15 W	Feb. 13	10 p., 13	Feb. 15	29.94	NNW	NNW, 8	N	N, 10	SSW-WNW.
Malayan Prince, Br.M.S.	Gibraltar	Halifax	40 50 N	40 00 W	do	8 a., 16	Feb. 16	29.26	SW	SSW, 10	NW	SSW, 10	SSW-NW.
Steel Trader, Am.S.S.	Swansea	St. John	45 29 N	58 12 W	Feb. 16	1 a., 16	do	29.07	W	W, 2	W	W, 10	Steady.
Caledonia, Br.S.S.	Belfast	New York	47 20 N	47 15 W	do	Noon, 16	Feb. 17	28.98	SE	SE, 9	W	SSE, 10	SE-S-W.
Steelmaker, Am.S.S.	Canal Zone	London	35 15 N	48 02 W	do	8 p., 16	Feb. 18	29.75	SW	SW, 6	NNE	N, 9	SW-NW.
Duquesne, Am.S.S.	Houston	Havre	34 32 N	43 07 W	Feb. 17	6 a., 17	Feb. 19	29.82	N	N, 7	NNE	N, 10	N-NW-N.
Dellian, Br.S.S.	Montserrat	do	34 10 N	38 55 W	do	10 p., 18	do	29.44	NW	N, 10	NE	N, 10	N-NE.
West Hika, Am.S.S.	Tampa	do	41 30 N	55 40 W	Feb. 21	8 p., 21	Feb. 21	29.56	SE	S, 10	NW	—, 10	S-NW.
Alberia, Ital.S.S.	Savannah	Malta	39 57 N	27 15 W	Feb. 22	Mdt., 22	Feb. 23	29.88	SSE	S, 8	SSE	ESE, 8	
Saracozie, Am.S.S.	Havre	New York	44 00 N	36 54 W	Feb. 24	2 a., 24	Feb. 24	29.68	N	N, 9	NE	N, 9	N-NE.
West Isleta, Am.S.S.	Cape Town	Boston	33 00 N	68 30 W	Feb. 25	—, 26	Feb. 28	29.93	SW	NW, 10	NW	NW, 10	NW-WNW-NW.
Lara, Am.S.S.	Maracaibo	New York	30 40 N	70 47 W	Feb. 26	2 p., 26	do	29.63	WSW	NW, 8	NNW	NW, 9	WSW-NW.
West Madaket, Am.S.S.	Manchester	Pensacola	29 10 N	58 45 W	do	4 a., 27	do	29.47	SW	SSW, 8	W	SW, 9	SSW-WNW.
Conte di Savoia, Ital.S.S.	New York	Gibraltar	40 00 N	48 33 W	do	—, 27	Feb. 27	28.86	E	SW, 7	SW	SW, 9	
City of Omaha, Am.S.S.	Bordeaux	Galveston	28 40 N	54 00 W	Feb. 27	4 p., 27	Feb. 28	29.57	SSW	SSW, 10	WNW	SSW, 10	SSW-WSW.
Capulin, Am.S.S.	Scotland	Boston	58 27 N	19 50 W	Feb. 24	—, 27	do	29.56	E	NE, 9	ENE	—, 10	NE-NNE.
West Quechee, Am.S.S.	Hatteras	Bishop Rock	40 00 N	62 30 W	Feb. 25	2 a., 27	Feb. 27	28.61	SSE	NW, 9	W	NW, 12	
NORTH PACIFIC OCEAN													
Makawao, Am.S.S.	Kauai, T.H.	San Francisco	32 20 N	150 20 W	Feb. 3	4 a., 3	Feb. 3	30.08	SE	SE, 7	SE	SE, 8	Steady.
Niagara, Br.S.S.	Victoria	Honolulu	33 58 N	146 50 W	do	2 p., 5	Feb. 5	29.24	SSE	S, 8	SW	SE, 9	SE-S-SW.
Alynbank, Br.M.S.	San Pedro	Yokohama	32 22 N	162 27 E	Feb. 4	8 p., 4	Feb. 4	29.54	SW	S, 10	W	S, 9	S-SW-WNW.
Kiyo Maru, Jap.S.S.	Estero Bay	do	30 54 N	160 24 W	do	4 a., 4	do	29.35	WNW	W, 10	WNW	NW, 9	WNW-NW.
Do	do	do	31 26 N	168 00 W	Feb. 6	2 p., 6	Feb. 9	29.39	SW	W, 10	W	W, 9	SW-WWNW.
Skranslad, Nor. M.S.	Cebu, P.I.	San Pedro	35 42 N	170 30 W	do	7 p., 6	Feb. 7	28.62	W	W, 10	WSW	W, 10	S-S-W.
Silverwillow, Br. M.S.	Manila	Portland	43 30 N	172 00 W	Feb. 8	10 p., 8	Feb. 9	29.21	WNW	WNW, 9	W	WNW, 9	WNW-NW.
S. C. T. Dodd, Am. S.S.	Balboa	Martinez	13 30 N	93 25 W	Feb. 9	4 a., 9	do	29.90	NW	NNW, 7	NNE	N, 8	NW-WNW-N.
Koyo Maru, Jap.S.S.	Port San Luis	Yokohama	32 51 N	155 16 W	Feb. 8	11 p., 8	Feb. 10	29.89	W	W, 8	SW	W, 9	Steady.
Mobile City, Am.S.S.	Hilo	P a n a m a Canal	12 25 N	110 07 W	Feb. 13	2 p., 13	Feb. 13	29.82	ENE	E, 8	E	E, 8	ENE-E.
Juyo Maru, Jap.S.S.	Milke	Vancouver	47 23 N	171 00 E	Feb. 15	4 p., 16	Feb. 18	28.79	N	N, 10	W	NE, 9	
Do	do	do	50 06 N	138 40 W	Feb. 21	6 p., 23	Feb. 23	29.61	S	SSW, 10	SW	S, 9	
Monterey, Am.S.S.	Pago Pago	San Pedro	8 43 N	162 39 W	Feb. 21	2 p., 21	Feb. 22	29.83	NE	ENE, 10	E	ENE, 8	NE-E.
Koyo Maru, Jap.S.S.	Port San Luis	Yohohama	34 17 N	140 52 E	Feb. 24	5 p., 24	Feb. 25	29.45	S	SW, 8	NW	SSW, 8	SSW-SW.
Fernade, Nor.M.S.	Grays Harbor	Osaka	33 02 N	152 23 E	Feb. 25	2 p., 25	do	29.69	S	SSW, 9	SW	SSW, 10	S-SSW-SW.
Grays Harbor, Am.S.S.	Cebu	Los Angeles	41 48 N	168 50 W	Feb. 24	—, 27	Feb. 28	30.23	E	E, 9	E	E, 9	Steady.
Golden Sun, Am.S.S.	Darien	San Francisco	45 56 N	146 32 W	Feb. 27	Noon, 28	do	29.73	NNW	NW, 8	NNW	NW, 8	

¹ Position approximate.